

## **Landscape Dynamics (Updated 4/30/10)**

**Parks where protocol will be implemented:** EUON, FOPO, JOMU, GOGA, MUWO, PINN, PORE, PRES

### **Justification/Issues being addressed:**

Regional landscape & land use change (Landscape Dynamics) was ranked 12th among all of the potential vital signs evaluated by the SFAN. Key reasons for monitoring regional landscape & land use change are (1) the rapid development of neighboring lands (2) the fragmentation of wildlife habitat (3) the need to detect life-form change within parks, and (4) to provide early warning of large-scale community shifts.

### **Monitoring questions to be addressed by the protocol:**

1. What is the baseline resource condition (landform habitat type)
2. Are the landforms changing?
3. Do the landform processes affect change on a natural scale?
4. How has wetland type, structure, and extent changed?
5. To what extent has development caused habitat fragmentation?
6. How are wildlife corridors changing?
7. How connected are the parks to neighboring open spaces
8. What are the effects of land use change within the region?
9. What is the effect of global climate change on a landscape level?
10. What is the status of wildlife corridors within the I & M Network?

### **The monitoring objectives are:**

- Determine status and trends in the areal extent and configuration of land-cover types (Anderson Level II) on park lands in order to evaluate large scale changes affecting park resources.
- Determine status and trends of key landscape metrics (e.g. proportion of area in different cover types, number and density of patches, mean patch size) of park lands and a ½ mile buffer in order to determine land use patterns in the parks.

### **Basic Approach:**

Monitoring landscape dynamics would use two basic approaches. The first approach would focus on using a retrospective analysis in order to evaluate historic changes of landscape patterns and conditions. The second would focus on current through future conditions by obtaining current satellite imagery. Minimum resolution of imagery used would be comparable to Landsat or IKONOS.

Available information concerning landuse/landscape change work already being conducted in the Bay area would be gathered prior to initiating any new work. All historic interpretation would be conducted as funding became available. Analysis of wetlands would include change in type, structure, and extent.

Frequency:

Every 10 years analysis would be conducted for all network parks

Timing:

Seasonality of images would be selected to maximize identification of major community types.

**Principal Investigators and NPS Lead:**

NA

**Proposed Development schedule, budget, and expected interim products:**

Development of protocol would be closely linked to development of national protocol.